

Holcombe Moor Site Visit report 2/4/2015

For: Holcombe Moor Historical Group

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1. Background - location and geology

The site lies in a valley that runs north-south. The solid geology is the Rossendale Formation with an outcrop of the Lower Hasligden Flags higher up the valley sides, both overlain by glacial till. The stream in the valley bottom is called Red Brook, which may be indicative of high iron content. There are siderite (FeCO_3 , 48.2% Fe). nodules within the Rossendale Formation, and would be a good iron ore for early smelters, but would require roasting to (a) enrich the ore by removing the CO_2 component and (b) introduce micro-cracks into the dense ore.. However, a brief search of literature produced no relevant reference discussing the occurrence of the ore within the strata. The valley would have supported enough woodland to produce wood to roast the ore and charcoal fuel for the furnace. The glacial deposits would have supplied the clay to construct the furnace.

The abandoned farm name of Cinder Hills is indicative of the presence of early ironworking slag.

2. The Site

The site is situated in the valley bottom with the dominant structures the walls of adjoining cottages with flagged floors. Exposed in the eroding stream side of the cottage was a deposit of slag. Examination of the stratigraphy would suggest that there is a clean deposit between the slag layer and the flagged floor of the cottages.

3. The Slag

Examination of examples of the slag confirm, that (a) it is iron tap slag and (b) that there are two main types. A small number of examples are dense tapped slag. Many examples display features that indicate that the slag was highly gassed, as evidenced by the presence of large gas bubbles and a low density. One piece was frozen in the form of a tapping channel, approximately 10cms across, with a U-shaped profile about 4cms deep.

The highly vesicular (gassy) slag is similar to the morphology of the slags associated with water-powered high bloomeries of Rievaulx Abbey, dated c1200-1320.

4. Dating

The morphology of the slag would suggest a date of c 1150- c.1450. The ^{14}C date obtained from a piece of charcoal stratified to the slag layer is broadly in agreement with a 12th

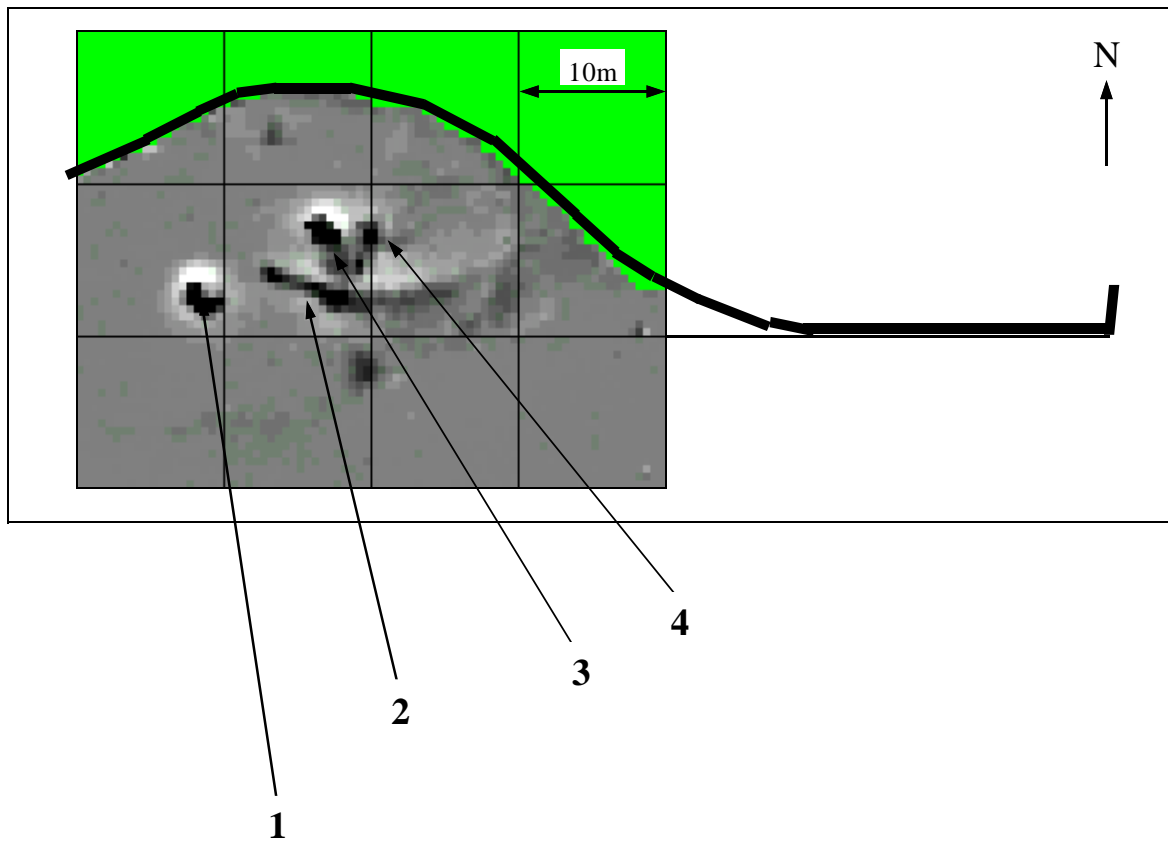
Century date. The verbal description of the charcoal piece suggest it was too large to be charcoal fuel for the furnace which would be coppiced woodland, e.g. c2-4cms in diameter and 5-10cms long. The dated piece could be mature wood, eg oak, which could derive from a constructional component of the furnace. It is suggested that the charcoal is identified to taxa.

5. Interpretation

There are two possible interpretations. Firstly that the slag has been brought from elsewhere (but nearby) and used as hard core to level the site prior to the construction of the stone buildings. Against this interpretation is the apparent layer of hillwash overlying the slag and beneath the stone flagging. Furthermore, a brief fieldwalk around the area, up to the site of Cinder Hills Farm, and back down to the stream above the weir revealed no evidence of a slag heap, or the remnants of a slag heap.

The second interpretation is that the peripheral of a slag heap has been exposed. This will be confirmed or refuted as the excavation progresses

The extent of a slag heap in Bilsdale, North Yorkshire is shown on the geophysics plot in Figure 1 and shows it to be about 5m x 5m, which would fit within the level area of the site.. The excavated furnace from that site is shown in Figure 2, and demonstrates that it is a substantial structure.



Anomaly 1 (Grids A—B) probably produced by two furnaces—defined clearly above 750nT.

Anomaly 2 Probable narrow and curved slag dump about 10m long tailing out to the east.

Anomaly 3 (Grids C-D) strong furnace anomaly—defined clearly above 750nT.

Anomaly 4 (Grids C-D) weak furnace anomaly—just base present?

Several clusters of positive data that lie between anomalies 3 and 4 and the slag dump may represent further furnace bases or slag accumulations.

Several linear anomalies that trend NE / SW immediately to the south-east of anomaly 1 may represent structure or ploughing marks.

Figure 1 geophysics plot of Stingamires smelting complex (Bilsdale, North Yorkshire) showing, furnace (Anomaly 3), slag heap (Anomaly 4), ore roasting hearth (Anomaly 1) and slag filled tailrace (Anomaly 2)



Figure 2 The partially excavated furnace Stingamires, Bilsdale, North Yorkshire



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